



CTPG 2011 Draft State-Wide Transmission Plan Approach

December 9, 2011

1 Background

The California Transmission Planning Group (CTPG) is a forum for conducting joint transmission planning studies and for coordinating CTPG members' transmission planning activities. The CTPG members include both transmission owners and operators who are subject to North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) transmission planning standards. The primary objective of the CTPG has been to provide a foundation for a statewide transmission plan that identifies the transmission infrastructure needed to reliably meet California's 33% Renewable Portfolio Standard (RPS) goal by the year 2020.

The CTPG is not a transmission or generation project decision-making body. Decisions relating to the addition of new transmission, generation or other actions will be made by project sponsors, applicable Balancing Authorities (BAs), and regulatory entities with jurisdiction over those decisions. The statewide plan is intended to be conceptual rather than prescriptive, in keeping with the CTPG's purpose. As such, the CTPG regularly requests and consolidates information on renewable projects from its members and state agencies to develop snapshots of California's generation portfolio at some future time. These snapshots are studied to identify regional transmission issues and propose potential transmission infrastructure additions that address those issues

The CTPG 2011 Statewide Transmission Plan is being developed in three phases. Phase 1, completed in July, 2011, consisted of the development of the detailed study assumptions with input from stakeholders. In Phase 2, the study assumptions developed in Phase 1 along with renewable resource development portfolios, were used to perform technical transmission planning studies. These technical studies used power flow, voltage stability, and transient stability analysis to identify potential violations of NERC and WECC reliability standards and criteria, and to test the effectiveness of transmission infrastructure additions in mitigating those violations. In Phase 3, the study results will be used along with the methodology described in this document to refine and update the CTPG's 2010 determination of "high potential" and "medium potential" transmission upgrades and "high potential" transmission corridors.

The CTPG does not represent that any particular transmission infrastructure addition identified through the course of the CTPG's study work—whether characterized as "high potential" or "medium potential"—is in fact, the best solution for mitigating identified potential violations of reliability standards and criteria. The CTPG has not attempted to identify or evaluate a broad assessment of alternatives for mitigating identified reliability criteria violations.

2 Introduction

The California Transmission Planning Group (CTPG) initiated its study efforts in early 2010 with the primary objective of providing a foundation for a State-wide transmission plan that identified the transmission infrastructure needed to reliably and efficiently meet the State's 33% Renewable Portfolio Standard (RPS) goal by the year 2020. A major challenge in the development of a definitive transmission plan has been and continues to be the uncertainty of the location of the renewable resources since the State's Load Serving Entities (LSE)s have not completed their respective final procurement decisions for meeting a 33% RPS, nor is it likely that those final procurement decisions will be made for several more years. In addition, uncertainties continue as to which of the renewable resource projects will be successful in obtaining permits and financing. California LSE's procurement strategies are also heavily dependent on the outcome of legislation and rule making still being considered by State regulators and decision makers. Also, the impacts of various resource procurement strategies on certain transmission import limits have yet to be fully evaluated.

The CTPG has chosen to take a three step approach to developing a state-wide transmission plan utilizing publicly available information combined with studies performed by the CTPG. This approach is intended to provide decision makers with potential transmission options for meeting the 33% RPS requirement.

2.1 Step 1: Determination of High Commercial Interest CREZs

As the first step to identifying the statewide transmission needs, the CTPG conducted an analysis, similar to that performed in 2010, of all CREZs to identify those CREZs which exhibit high levels of commercial interest. The CTPG's approach involved the comparison of the renewable resources in the CPUC "discounted core" to the position of the same resource in the California Independent System Operator (CAISO) renewable resource generator interconnection queue. The CTPG also did the same for Publicly Owned Utility (POU) renewable resource projects.

The CPUC jurisdictional LSEs (IOUs, Direct Access (DA) providers and Community Choice Aggregators (CCAs)) supply about 80 percent of the total load in California. Hence, CPUC indications of commercial projects to which the CPUC may give priority in its regulatory proceedings, including the long-term procurement proceeding (LTPP), are one key filter for identifying higher priority renewable resource projects. The CPUC has been developing a methodology for selecting the highest ranked projects. The term "discounted core" is used to refer to these projects. In its current methodology, the criteria for inclusion in the CPUC's discounted core are:

1. The project must have a signed Purchased Power Agreement (PPA) and either be under review or already approved by the CPUC as of June 1, 2010; and

2. The project must have its major construction permit filed with and deemed data adequate by the appropriate agency, as of March 1, 2010.

The generation interconnection queues in California have more than sufficient renewable capacity to meet and exceed the 33% RPS requirement. The largest such queue in California is the one managed by the CASIO. This queue includes renewable resource projects that correspond both to investor-owned utility and some publicly-owned utility procurement interests. Similar to 2010, the CTPG used projects from the CAISO queue for comparison to the CPUC “discounted core” projects that have reached the following stages in their interconnection process:

1. For renewable projects subject to “serial” interconnection studies – All renewable projects with all interconnection studies completed and have either signed or are in process of signing their interconnection agreement.
2. For renewable projects subject “cluster” studies – All renewable projects that have posted financial security for the upgrades identified in Phase II cluster studies.

These criteria were chosen to focus on projects that are in the most advanced state of development or have otherwise demonstrated a material level of financial commitment. For resources in the CAISO interconnection queue, provision of financial security requires that the CAISO conduct the relevant interconnection studies. Under the CAISO tariff, project developers that fulfill the interconnection requirements and are willing to finance transmission, or have participating transmission owners build transmission, receive de facto CAISO approval to proceed with transmission development via CAISO management’s signature on the projects Generator Interconnection Agreement. Typically, the process of obtaining the regulatory authorizations¹ and environmental permits² to construct the identified transmission upgrades is initiated once a signed Generator Interconnection Agreement is in hand.

Table 1 compares the discounted core installed MW in CREZs with Generation Queue MW for the same CREZ. The out of state renewable resource development areas that are part of the discounted core and are not connected directly to a state balancing authority, are not included in the table.

¹ For California’s Investor Owned Utilities (IOUs) this may be a Permit To Construct (PTC) or Certificate of Public Convenience and Necessity (CPCN). For governmental entities this may be city council or governing board approval.

² Includes compliance with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA).

Table 1: High Ranked CREZs by Commercial Potential

CREZ	% Discounted Core in Queue by Technology	Discounted Core MW)	Gen Queue MW)
Mountain Pass	100%	410	410
Pisgah	100%	500	800
Tehachapi	100%	1912	7545
Riverside East	100%	1042	2550
Kramer	100%	250	250
Carrizo North/South	94%	849	800
Solano	100%	166	509
San Bernardino – Lucerne	100%	42	42
Imperial South	100%	389	825
Palm Springs	100%	77	138

2.2 Step 2: Determination of High Potential and Medium Potential Transmission Upgrades

The CTPG will review its 2011 study results and the list of high ranked CREZs identified in Step 1, to determine whether any changes to the high potential and medium potential transmission elements identified in Phase 3 of CTPG’s 2010 study work are in order. In making this determination, CTPG will make an assessment of the relative amount of renewable power that an upgrade is expected to carry from high ranked CREZs.

One change that CTPG intends to make is moving any high or medium potential transmission upgrades identified in Phase 3 of CTPG’s 2010 study work that have been approved by a Balancing Authority, to the list of Balancing Authority approved transmission projects provided on Table 20 of CTPG’s final 2011 Phase 2 Study Report. Because these upgrades have already received Balancing Authority approval, they are considered to have transitioned from a state of “high” or “medium” potential, to a state where construction is likely. CTPG anticipates that this change will significantly reduce the number of high potential transmission upgrades which appear in CTPG’s 2011 statewide transmission plan.

2.3 Step 3: High Potential Transmission Corridors

Similar to 2010, the CTPG will identify High Potential transmission corridors that may provide the State with options going forward. The identification of these transmission corridors is intended to provide transmission planning information to assist the State LSEs efforts in the identification of renewable resource projects and procurement strategies that provide for the possibility that other renewable resources located out of state. It is also the intention of the CTPG that by providing the high potential transmission corridor option, a competitive renewable resource development and procurement environment will be maintained as the final procurement

decisions are made by the State's LSEs. The following criteria have been selected by the CTPG for determining the high potential transmission corridor options to be included in the 2011 CTPG State-Wide Transmission Plan for consideration and further study. Selected transmission corridor options must meet a majority of the criteria listed below.

- Transmission corridors associated with out-of-state transmission upgrades currently being considered by other WECC planning entities for the delivery of renewable resources into California
- Transmission corridors associated with out-of-state transmission upgrades that have known state government support for the development and export of renewable resources and of the development of the transmission infrastructure required to accomplish such.
- Transmission corridor options that provide the potential for a state renewable resource portfolio that has geographical and weather (wind and sun) diversity
- Transmission corridor options associated with out-of-state entities that are either developing or planning for the development of renewable resources well beyond their own needs
- Transmission corridor options associated with access to areas that have a successful record of renewable resource development

It is expected that as critical decisions are made associated with legislation, state policy and rule making, the transmission corridor options identified will be studied further and will be combined with the "high potential" transmission elements into a more definitive State-wide transmission plan.